

Tuesday 16 January 2024

Afternoon (Time: 3 hours)

Paper
reference

31761H

Information Technology

UNIT 2: Creating Systems to Manage Information

Part A

You must have:

activity2.rtf, activity3.rtf, activity4.rtf

Instructions

- **Part A** and **Part B** contain the material for the completion of the assessment under supervised conditions.
- There are 40 marks for **Part A** and 26 marks for **Part B**, giving a total mark for the assessment of 66.
- **Part A** and **Part B** are specific to each series and this material must be issued only to learners who have been entered to take the assessment in the specified series.
- Learners **must only** have access to **Part A** during this examination session.
- This booklet should be kept securely until the start of the 3-hour supervised assessment period.
- **Part B** materials **must not** be accessed during the completion of **Part A**.
- **Part A** and **Part B** should be submitted together for each learner.
- This booklet should not be returned to Pearson.
- Answer **all** activities.

Information

- The total mark for this paper is 40.

Turn over ►

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Instructions to Invigilators

This paper must be read in conjunction with the unit information in the specification and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document. See the Pearson website for details.

Refer carefully to the instructions in this booklet and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document to ensure that the assessment is supervised correctly.

The 3-hour **Part A** activities must be carried out under examination conditions.

Electronic templates for Activities 2, 3 and 4 are available on the website for centres to download for learner use.

Learners must complete **Part A** on a computer using the templates provided and appropriate software. All work must be saved as PDF documents for submission.

Invigilators may clarify the wording that appears in **Part A** but cannot provide any guidance in completion of the activities.

Invigilators should note that they are responsible for maintaining security and for reporting issues to Pearson.

Maintaining security

- Learners must not bring anything into the examination environment or take anything out.
- Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the examination environment.
- Internet access is **not** permitted.
- Learner work must be regularly backed up. Learners should save their work to their folder using the naming instructions indicated in each activity.
- During any permitted break, and at the end of the examination, materials must be kept securely, and no items removed from the supervised environment.
- Learners can only access their work under supervision.
- User areas must only be accessible during the examination session and only by the individual learners.
- Any materials being used by learners must be collected in at the end of the examination.
- Following completion of **Part A**, all materials must be retained securely for submission to Pearson.
- **Part B** materials must not be accessed during the completion of **Part A**.

Outcomes for submission

Each learner must create a folder to submit their work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

Each learner will need to submit 6 PDF documents **and** their final database within their folder.

The 6 PDF documents should use these file names:

Activity 1: activity1_[Registration number #]_[surname]_[first letter of first name]

Activity 2: activity2_[Registration number #]_[surname]_[first letter of first name]

Activity 3: activity3_[Registration number #]_[surname]_[first letter of first name]

Activity 3d: activity3d_[Registration number #]_[surname]_[first letter of first name]

Activity 4: activity4_[Registration number #]_[surname]_[first letter of first name]

Activity 5: activity5_[Registration number #]_[surname]_[first letter of first name]

Instructions for Learners

Read the scenario, brief and activities information carefully.

Plan your time carefully to allow for the preparation and completion of all the activities.

Internet access is **not** allowed.

You will complete the activities under supervision and your work will be kept securely at all times.

You must work independently throughout the examination and must not share your work with other learners.

Your invigilator may clarify the wording that appears in **Part A** but cannot provide any guidance in completion of the activities.

Part B materials **must not** be accessed during the completion of **Part A**.

Outcomes for submission

You must create a folder to submit your work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

You will need to submit 6 PDF documents **and** your final database within this folder.

The 6 PDF documents should use these file names:

Activity 1: activity1_[Registration number #]_[surname]_[first letter of first name]

Activity 2: activity2_[Registration number #]_[surname]_[first letter of first name]

Activity 3: activity3_[Registration number #]_[surname]_[first letter of first name]

Activity 3d: activity3d_[Registration number #]_[surname]_[first letter of first name]

Activity 4: activity4_[Registration number #]_[surname]_[first letter of first name]

Activity 5: activity5_[Registration number #]_[surname]_[first letter of first name]

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Part A Brief

You are advised to spend 10 minutes reading the scenario and the activities you are to complete.

You may make notes and/or highlight information to use in the completion of the documents you need to produce for your activities.

Scenario

You have been asked to create a database for Roseblush Roses.

Roseblush Roses is a company that plants and maintains rose displays.

The database will record information about the roses that are used in the displays.

Each rose is purchased from a single supplier.

Each rose has an expert who oversees the planting and maintenance of that rose.

Each rose has a rose type, e.g. Grandiflora.

Rose types have a height between 0.6 and 1.82 metres inclusive.

An extract of the data the company would like to record is shown in **Figure 1**.

Rose ID	Rose Name	Supplier ID	Rose Colour	Rose Type ID	Supplier Telephone	Rose Type	Supplier Name	Expert ID	Expert Surname	Type Height	Expert Last Training
1	Alec's Red	1	Crimson to cherry	1	(01632) 960259	Hybrid Tea	Tri Nursery	1	Grassy	1	24/11/2023
2	Blessings	2	Coral pink	1	(01632) 960244	Hybrid Tea	Withingtons	2	Akel	1	14/09/2019
3	Sweet Spirit	3	Cherry red	2	(01632) 961444	Grandiflora	Best Flowers	1	Grassy	1.82	24/11/2023
4	Lizzy	2	Pale pink	2	(01632) 960244	Grandiflora	Withingtons	1	Grassy	1.82	24/11/2023
5	Arthur Bell	1	Bright yellow	3	(01632) 960259	Floribunda	Tri Nursery	1	Grassy	1.8	24/11/2023
6	English Miss	3	Light pink	3	(01632) 961444	Floribunda	Best Flowers	2	Akel	1.8	14/09/2019
7	China Doll	2	Pink	4	(01632) 960244	Polyantha	Withingtons	3	Frost	0.6	16/08/2020

Figure 1

Part A

You must complete ALL activities within Part A.

Produce your documents using a computer.

Save your documents in your folder ready for submission using the formats and naming conventions indicated.

Activity 1: Database Relationships Screenprint (45 minutes)

Study the data extract provided in **Figure 1**.

Create an efficient database structure that:

- minimises data duplication
- accepts the data provided
- uses recognised naming conventions
- ensures data integrity.

Ensure you use **all** and **only** the fields shown in **Figure 1**.

Screen print your database relationships.

Save your database relationships screenprint as a PDF in your folder for submission as
activity1_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 45 minutes on this activity.

(Total for Activity 1 = 8 marks)

Activity 2: Table Structures and Validation (45 minutes)

Create efficient table structures based on Activity 1 and the data shown in **Figure 1**.

The table structures must use suitable validation to meet these requirements:

- a record for a new supplier will not save if the supplier telephone number is not in the correct format
- a record for a new supplier will not save if the supplier name is not present
- a record for a new rose will not save if the expert ID is invalid
- a record for a new rose will not save if the rose type ID is invalid
- a record for a new rose type will not save if the type height is below the accepted range
- a record for a new rose type will not save if the type height is above the accepted range.

Input the data given in **Figure 1** into your relational database.

Evidence your table structures and validation as screenprints using the given **activity2.rtf** template.

Display your screenprints to show:

- the design view of each table showing the structure, including the fields and data types
- validation including one suitable example for each of these:
 - presence check
 - length check
 - value lookup **or** range check
 - table lookup
 - format check.

Save your evidence of the table structures as a PDF in your folder for submission as **activity2_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 2 = 8 marks)

Activity 3: Queries and Report (40 minutes)

Queries

- (a) Create a query to display an alphabetically sorted list of roses that are any shade of pink and have a type height of at least 1.8 metres. It must display only the rose name, the rose colour and the supplier name.
- (b) Each expert must do training every three years.

Create a query to display information about the experts who need to do training.

Calculate:

- the number of years since the last training
- the number of roses the expert is responsible for.

Display:

- the expert ID
- the expert surname
- the number of years since the expert's last training
- the number of roses the expert is responsible for.

Evidence your queries as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the queries specified that you have created, including fields and criteria
- the **DATASHEET** view of the queries specified that you have created.

Report

(c) Each rose type should have a minimum of two suppliers.

Create a report that shows a list for the rose type Grandiflora and the rose type Polyantha.

For each rose type, calculate:

- the total number of suppliers
- whether more suppliers are needed.

Display:

- a suitable report title
- the rose type
- the supplier name(s)
- the total number of suppliers for each rose type
- the words "More suppliers needed" if more suppliers are needed.

The report must fit on one page.

Evidence your report as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the report you have created, including grouping and calculations
- the **DESIGN** view of any queries you have created and used with the report, including fields and criteria
- the **DATASHEET** view of any queries you have created and used with the report.

Save your query and report evidence as a PDF in your folder for submission as
activity3_[Registration number #]_[surname]_[first letter of first name]

(d) Save your database report (not a screenprint) as a PDF in your folder for submission as **activity3d_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 40 minutes on this activity.

(Total for Activity 3 = 12 marks)

Activity 4: Structure Testing (20 minutes)

Test the structure and the validation of your relational database using suitable test data (normal, erroneous and extreme as appropriate).

You must provide evidence of table level testing that proves:

1. a record for a new supplier will not save if the supplier telephone number is not in the correct format
2. a record for a new supplier will not save if the supplier name is not present
3. a record for a new rose will not save if the expert ID is invalid
4. a record for a new rose will not save if the rose type ID is invalid
5. a record for a new rose type will not save if the type height is below the accepted range
6. a record for a new rose type will not save if the type height is above the accepted range.

Complete the test log to show how you have tested the structure and validation of your database using the given **activity4.rtf** template.

Save your test log as a PDF in your folder for submission as
activity4_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 4 = 6 marks)

Activity 5: Structure Evaluation (20 minutes)

Evaluate your database structure and validation.

You should consider:

- how well your database structure has minimised data duplication
- how well your database structure meets these requirements:
 - each rose is purchased from a single supplier
 - each rose has an expert who oversees the planting and maintenance of that rose
 - each rose has a rose type, e.g. Grandiflora
 - rose types have a height between 0.6 and 1.82 metres inclusive.

Save your evaluation as a PDF in your folder for submission as
activity5_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 5 = 6 marks)

TOTAL FOR PART A = 40 MARKS